The Maryland Fruit Grower

February, 1936

Maryland State
Horticultural Society

FRUIT TREES

Good Trees In Better Varieties Scarce

We, however, offer in various varieties and sizes more than quarter of a million Apple and Peach.

APPLE

Being the largest fruit tree growers in Virginia and supplying a large percent of all the trees being planted in the commercial orchards of the State, we naturally are in the forefront, testing and introducing new and improved varieties.

Among the new varieties we offer is the LOWRY, an Apple which originated in Virginia and is becoming one of Virginia's most popular and profitable commercial varieties, as well as proving most promising in other States wherever tested.

YORKING, a New Solid Bright Red York, on which a U. S. Patent was granted May 28, 1935, is undoubtedly the outstanding red sport of all times.

NEW RED DELICIOUS has almost completely eliminated Common Delicious from new plantings.

NEW RED STAYMAN, a sport of the Common Stayman, is just as great an improvement over Common Stayman as anyone could desire.
We can furnish trees in these popular varieties, as well as in the standard varieties including:

Albemarle Pippin
Ben Davis
Delicious
M. B. Twig
N. W. Greening
Paragon
Stayman
Summer Rambo
Winesap
York

PEACH

At the beginning of the season we had our usual supply of good trees. Our sales have been greater than ever before and fewer Peach are now available than in other seasons. So we urge you to place your order early.

DO NOT DELAY. Write now for a copy of our new 44 page Planting Guide and Price List, offering one of the most complete lines of plant material in the East.

WAYNESBORO NURSERIES INC.

WAYNESBORO, VA.

The Maryland Fruit Grower

Published Monthly by the Maryland State Horticultural Society

Edited by the Secretary, A. F. Vierheller, Extension Horticulturist

Vol. 6 **February, 1936** **No. 2**

PRUNING BEARING APPLE TREES

A. L. Schrader, Acting Head, Dept. of Horticulture,
University of Maryland.

Many growers, no doubt, have had an opportunity to read a recent bulletin on apple pruning from Michigan which presents some interesting results. It seems worth while at this time to pick out the main points of this publication especially for comparison with our recommendations and results in Maryland. Often it is possible to apply the results of experiments on orchard trees in other states to Maryland orchards, thus growers as well as research men should appreciate the possibility of benefit derived from research work and orchard experiences in other states.

The Michigan bulletin by G. L. Ricks and H. P. Gaston is entitled "The 'Thin Wood' Method of Pruning Bearing Apple Trees", Michigan Special Bulletin 265 of the Michigan Agricultural Experiment Station, East Lansing, Michigan. The following extracts from the bulletin seemed particularly suitable to give Maryland growers a digest of the material of the experiments:

"Reduced to its simplest terms, 'Thin Wood' pruning consists in removing from the tree the 'thin' or slender, relatively unproductive branches. The four most outstanding characteristics of thin wood are: 'Thin' weak wood always makes short terminal growth. Most of the "Thin' weak wood is found in the lower, inner part of the tree. 'Thin' weak wood grows in a downward direction. The four year old wood of the 'thin' weak branches is less than 2/8 in. in diameter. . . .

"All fruit bearing branches were accordingly classified as follows:

'Thin' branches, whose four-year-old wood was less than 2/8 in. in diameter.

'Intermediate' branches, whose four-year-old wood was from 2/8 to 3/8 in. in diameter.

'Thick' branches, whose four-year-old wood was more than 3/8 in. in diameter. . . .

"The three significant facts brought out by these branch performance studies will now be stated and discussed.

(1) *The size of the individual apples tends to be directly proportionate to the diameter of the branches upon which they are borne.* In other words, 'thin' branches tend to bear small apples; 'intermediate' branches tend to bear apples of medium size, while 'thick' branches tend to bear large apples. For example, only 36 per cent of the apples borne on the 'thin' branches were 2½ inches or more in diameter. The performance of most branches of this diameter was obviously unsatisfactory. Sixty-six per cent of the apples produced by the 'intermediate' branches were 2½ in. or more in diameter, while the corresponding percentage for the 'thick' branches was 76 per cent. . .

(2) *The number of apples borne by a given branch tends to be directly proportional to its diameter.* That is, 'thin' branches tend to bear few apples, 'intermediate' branches tend to bear a moderate number, and 'thick' branches tend to bear a comparatively large number of fruits. Thus, in the case of the

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Wealthy branches under consideration, those of small diameter bore, on the average, only 3.4 apples, those of intermediate diameter averaged 5.8 apples, and those of large diameter averaged 10.6 apples. . . .

(3) *The amount and shade of color present on the apples produced by a given branch tends to be directly proportional to the diameter of that branch.* Thus, in the case of the Wealthy branches studied, thin branches produced more apples of U. S. Commercial grade color than of U. S. Fancy or of U. S. No. 1 grade. Branches of intermediate diameter produced more apples of U. S. No. 1 color grade than of Fancy or Commercial grade, while the branches of large diameter produced fruit which was predominantly of Fancy color grade. . . .

"Incidentally, it may be pointed out that there is a marked difference in the character of growth made by branches of different diameter. One of the most obvious and easily measured differences is in length of terminal growth. In the case of the Wealthy branches studied, the 'intermediate' branches grew almost twice as fast as did the 'thin' ones and those of large diameter grew practically three times as fast. This characteristic is of importance because it affords a means of quick and positive identification of the different classes of wood. . . . "

The 'Thin Wood' Method of Pruning

"The First Step—There is in almost every bearing tree which has not been previously pruned by the 'Thin Wood' method a number of comparatively large limbs which give rise to a number of smaller branches, practically all of which are of the 'thin' wood type. Though some of these branches may grow more or less upright, most of them are usually found growing in a horizontal or even downward direction. The weight of a crop of fruit pulls the extremities of such branches toward or even to the ground where the fruit may be damaged. As a first step the large branches, most of whose laterals fall into this class, are removed. This is done with a saw. . . .

"The Second Step—With the lopping shears, the worker moves once more around the trunk of the tree, this time removing the 'thin' wood which still remains in the lower center. . . .

"The Third Step—Most of the work is done in what is here described as the first and second steps, and in the case of younger trees it only remains for the worker to step up on the lower branches of the tree and remove any 'thin' wood which could not be reached from the ground. In the case of older and larger trees, some climbing and the use of a ladder may be necessary. When the 'thin' wood has been removed from the upper, interior part of the tree, the job is finished. . . .

"How to Check the Work—The 'Thin Wood' method of pruning, although simple, is so different from the conventional one that the grower may wish to check his work when he first begins to employ it. Although he will have little difficulty in identifying the weakest wood, he may find it somewhat puzzling to decide just how far to go in the matter of removing wood of the intermediate type.

"The grower who wants to decide ahead of time on the wood to be removed should go over his trees just before the preceding harvest. He will see, more especially in the lower part of the tree, a number of small, green apples. The wood upon which these apples are growing is that

which should be removed during the following dormant season. If the grower is not sure he can bear in mind the characteristics of the wood to be removed, he should 'summer prune' at least one tree at harvest time. With the apples to guide him, and by noting carefully the wood removed and the appearance of the pruned tree, he can hardly fail to do an excellent job. This tree should be observed carefully just before the succeeding harvest. The worker can, in this way, identify weak branches which may have been missed by simply noting those branches upon which small, poorly-colored apples are growing. Mistakes made the first year may be readily corrected when the trees are next gone over. . . .

"*'Thin Wood' Pruning Materially Reduces the Yield of Small Apples*—The data presented clearly shows that 'Thin Wood' pruning reduces by about a half the small unsalable apples (less than 2¼ inches in diameter), as compared with no pruning, and that it effects a substantially greater reduction in apples of this type than is brought about by moderate or light pruning of the conventional type. . . .

"In view of the fact that studies by Gaston show that in Michigan, (1) 43 per cent of total crop from the commercial orchards of the state fail to meet the requirements for the Michigan 'A' grade, (2) that 15 per cent grade out as culls, (3) that a third of the culling is done because of failure to meet the size specifications of the 'A' and the 'B' grades, respectively, (4) that the 'B' grade seldom nets the growers a profit, and (5) that the cull grade is produced and handled at an actual loss,

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or to
SUN OIL COMPANY, Philadelphia
Makers of Blue Sunoco Motor Fuel

the importance of reducing the quantity of small-sized fruits becomes apparent. . . .

"*'Thin Wood' Pruning Improves the Color Grade*—This is accomplished by removing the wood upon which the relatively under-colored apples would grow and leaving that which normally bears well-colored specimens. . . .

"*Monetary Returns from 'Thin Wood' Pruning*—The returns derived from the trees which received 'Thin Wood' pruning exceeded those from the unpruned trees by 11 per cent, and they are 21 per cent greater than returns from the trees pruned by the conventional method. . . .

". . . Any doubt which may exist is eliminated by the fact that 'Thin Wood' pruning materially facilitates such orchard operations as thinning, spraying, and harvesting. . . .

"*'Thin Wood' Pruning is Less Costly Than the Conventional Method*—Careful records of the time required to prune the trees included in the experimental blocks were kept, and it was found that to prune by the conventional method required, on the average, from 25 to 35 per cent more time than did the 'Thin Wood' method.

". . . No matter how thick the tops may be, the vigorous branches will not only produce apples of larger size and better color, but will produce more of them than will the branches in other parts of the tree. This means that the thick tops should be encouraged rather than discouraged.

". . . Thick, productive branches should be allowed to remain even though they may cross, be parallel, or otherwise interfere. It is difficult for those who have formerly practiced conventional pruning to believe that the crossing branch should not be removed. Yet, why should a productive branch be removed just because it happens to grow in close proximity to another? . . .

". .. As branches which originate low in the tree assume a horizontal or downward direction of growth, they usually take on the characteristics of 'thin' wood. When this happens they should be removed. By this means poor wood is eliminated and that of superior quality given a better opportunity to develop and bear fruit. . . .

"The conventional method often results in a flat-topped tree of comparatively small capacity, inherent mechanical weakness, and unnatural form; but not so with the 'Thin Wood' of pruned tree. As already stated, well-spaced trees having received this treatment throughout their lives develop naturally into large, spreading trees of great capacity. . . . "

In comparing the Michigan results and recommendations with those of Maryland, one is struck by the similarity of the "thin wood" removal in the Michigan pruning and the removal of the "weak wood" and "hangers" as recommended and practiced in Maryland. The type of wood removed is identical. Even the larger cuts, which remove principally lower branches with poor growth in the Michigan system, correspond with the cuts recommended in the Maryland pruning, except in Maryland such limbs are designated as weak lower limbs that have small diameter in relation to the limb from which they grow. Particularly, Maryland agrees with Michigan in regard to the avoidance of cutting back the tops, dishing out the center of the top or cutting big holes in the top to let in the sun. However, the amount of thinning

in the top of the tree with small cuts has been greater in Maryland because of the necessity of thinning the tree sufficiently to make spraying effective in control of insects, especially codling moth, a most serious proposition in Maryland, and to aid in color development by better light conditions, even in the top. We probably accept some reduction in yield to insure the proper conditions of limb spacing for most effective spraying and better color development, although with trees that have been pruned annually the removal of good bearing wood is slight compared to the removal of such wood with trees that had previously received little or no pruning. The Michigan work used trees that had little or no pruning previous to the experiments.

The above discussion serves to emphasize the need for a grower to recognize the dormant growth condition of individual branches and limbs as well as the general growth of the tree. Such details as relative diameter of limbs, diameter and length growth of spurs and terminals, numbers of non-fruitful spurs and bark color are all diagnostic aids in governing pruning practice as well as fertilizer and cultural programs.

FREEZE INJURY

There has been considerable freeze injury to peach buds in various parts of the country. Reports state that the Central West, in such states as Illinois, Indiana, Missouri and Arkansas, peaches were injured in degrees ranging up to total loss of crop. It appears that the damage may be scattered and spotty. Growers report partial to total loss of crop in parts of West Virginia and Pennsylvania. Maryland had partial damage, but scattered over the state. The results of the sub-zero temperature of February 8, are not fully known. More complete reports will be given in the March issue of the Maryland Fruit Growers.

Growers are urged to cut some peach twigs, and place them in water for a day or more, then cut across the buds to determine extent of injury. It is suggested that peach pruning be delayed until near bud swelling time, then prune lightly. Trees pruned well, last year, might even be left unpruned without serious result. In any event, do not prune peach trees severely. If rejuvenating older trees, prune only moderately.

SUN SCALD

Sun scald or winter scald is believed to be a result of the winter sun thawing the bark of the tree during the warm afternoons, after which the bark again becomes very cold or partly frozen causing killing of the bark tissue. General recommendations are that some water sprouts be left along the tops of exposed branches in the upper part of the tree. Whitewashing the trunks of trees has long been recommended. Some investigations at New York Agricultural Experiment Station have shown that when the air temperature was 43°, the temperature underneath the bark on the southwest side of the tree was 71°. On a whitewashed trunk, the temperature on the southwest side was reduced to 43°, thus reducing the great difference in temperature, and reducing danger of scald.

There seems to be considerable trunk injury from last year's cold and sunscald effects. The bark is now showing large cracks or curled portions. About the best treatment is to cut away the loose bark back to live tissues,

then use some large-headed short nails, or bill posters' tacks to hold the edges and prevent further curling back. The exposed wood may be painted with common white lead paint or grafting wax; however in painting, remember the old advice about painting of wounds and don't paint over the live edges of the bark. It will heal over quicker. If the trunk is very badly injured, or if the trees are good trees, possibly a few bridge grafts would pay for themselves as they would speed up the healing. The Maryland Experiment Station, College Park, has a bulletin on grafting.

MORE ABOUT COSTS

Dr. H. B. Tukey, writing in September, 1935 Rural New Yorker, stated that it cost the Northwestern apple growers 63 cents per box to put their fruit on the market, during the 12-year period 1922-33. In 1933 the cost was 55.5 cents. Costs were divided into 39% for packing services, 23% for boxes, 11% for warehousing, 10% for storage, and 1% for selling. This doesn't include transportation nor growing costs.

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It will cost you only a penny post card to learn about a new implement that may save you hundreds of dollars. This new model CLARK "CUTAWAY" WONDER DISKER is just what many fruit growers have been waiting for. You should have complete information; write for it today. No obligation to buy; questions invited.

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THE WEST VIRGINIA MEETINGS

The West Virginia Horticultural Society held a two-day convention at Martinsburg that was marked by action, optimism and enthusiasm.

One speaker stated that foreign trade in apples was declining in most countries, although some countries were increasing their imports slightly. It was brought out that tariffs were causing some of the trouble, and that some of the foreign trade had been good only because of short crops abroad. Also there is a determined advertising campaign in full swing boosting the fruit products of the various countries and their colonies. Great Britain, one of our best customers, is not going to buy cheap fruit in world markets at the expense of her own agriculture. The export apple and pear act has helped American fruit abroad.

The discussion of remedies brought out these facts and opinions: Poor varieties and poor trees must go. Domestic supply of apples must be reduced to the market demand. Control of production is more logical than control of marketing. Nature is helping in removal of trees by results of freeze, drought and disease injury to trees. Some growers reported heavy removal of unprofitable varieties, and it was suggested that a variety not showing a profit in 5 years be given the axe. There was, however, considerable feeling that we are not over-producing apples, but that not enough apples were being used in America. It was also stated that there was too much spread between grower and consumer, causing high prices that discourage buying. Growers were advised to cater to the wants of the markets, and grade to quarter-inch sizes, if the certain markets want this done. It was also mentioned that the varieties should be pushed according to their season, not York in the Jonathan season. It was suggested that the apple be publicized, telling of its virtues, before trying to advertise apples of any particular section or state.

THE FRUIT OUTLOOK

The Bureau of Agricultural Economics of the U. S. Department of Agriculture has issued the Fruit Outlook for 1936. According to the report there will be slightly less apple production in the next 5 years, with possible slight to moderate average prices to growers. There has been a decline in numbers of trees, and some moderate increase in planting, especially in replacements of late apples will be necessary to maintain the average production of the last few years, ten years from now. Early apple growers have removed or abandoned quite a large number of trees in the past few years, but there appears to be a plentiful supply of early apples for several years to come.

Peach production for the next 5 years will remain about as for the past five years. There may be some decline in number of bearing trees, in the next few years, but the remaining trees will probably have better care. Moderate increases in planting were reported for 1935, with further increase expected. The present bearing capacity of producing orchards is not excessive, and there should not be excess production in average years, if the demand increases a little. The South will probably maintain, for the next 5 years, the production of the past 5 years, due to new plantings and better care of older trees.

Strawberries show an increase in acreage, totaling about 12,000 acres increase over last year. Maryland has about 1,300 acres more than last year,

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and the Intermediate Group to which this state belongs, has a total increased acreage of 8,000 acres. The strawberry fields were showing condition of about 74%.

BULLETINS YOU MAY LIKE

The following bulletins may be had upon request, by writing the stations as shown after the bulletin titles. These bulletins are free, but there may be charges for some of them, in which case the writer will be notified. Keep in mind that the bulletins are written to apply to certain sections, and may not be entirely adaptable to local conditions.

Washington	State College of Washington, Pullman. Eat Apples. Ext. Bull. 204,1035.
Missouri	College of Agriculture, Columbia. Causes of Cull Apples. Sta. Bull. 343, 1935. Starting the Orchard. Sta. Circ. 181, 1934. Orchard Soil Management. Sta. Bull. 28, 1934.
New York	New York State Agricultural Experiment Station, Geneva. Apple Growing in New York. Sta. Circ. 158, 1935.
New Jersey	State College of Agriculture, New Brunswick. The Plum Curculio. Sta. Circ. 349, 1935. Control of Anthracnose of Red Raspberries. Ext. Bull, 160, 1935.
Pennsylvania	Pennsylvania State College, State College, Pa. Spraying and Dusting Apples, Costs, Grades of Fruit, Returns. Sta. Bull. 311, 1934.
Virginia	Virginia Polytechnic Institute, Blacksburg. The Plum Curculio in Virginia. Sta. Bull. 297, 1935.
Delaware	University of Delaware, Newark. Control of the Plum Curculio in Delaware. Sta. Bull. 193, 1935.
West Virginia	College of Agriculture, Morgantown. Growing Grapes in West Virginia. Sta. Circ. 69, 1935.
Iowa	Iowa State College of Agriculture, Ames. Functional Deseases of the Apple in Storage. Sta. Bull. 329, 1935.
Ohio	College of Agriculture, Columbus. Peach Leaf Curl. Ext. Bull. 158, 1935.
Indiana	Purdue University, LaFayette. Peach Pointers, Ext. Bull, rev., 1935. Controlling Fire Blight by Canker Treatment and Spraying. Ext. Bull. 208, 1935. Soil Management and Fertilizers of Indiana Fruit Crops. Ext. Leaflet 185, 1935.

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New Jersey	State College of Agriculture, New Brunswick. The Plum Curculio. Sta. Circ. 349, 1935. Control of Anthracnose of Red Raspberries. Ext. Bull, 160, 1935.
Pennsylvania	Pennsylvania State College, State College, Pa. Spraying and Dusting Apples, Costs, Grades of Fruit, Returns. Sta. Bull. 311, 1934.
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